

**WHAT IS CLAIMED IS:**

- 1     1. A computer-implemented method for solving linear  
2       equations, the method comprising:  
3       receiving, into a common memory, a plurality of  
4       coefficients,  
5       the common memory being accessible by one or more  
6       first processors and by one or more secondary  
7       processors, wherein the one or more first processors  
8       and the one or more second processors being chosen  
9       from a group of heterogeneous processors, and  
10      the coefficients corresponding to the linear  
11      equations;  
12      dividing the coefficients into a plurality of  
13      coefficient blocks using the one or more first  
14      processors;  
15      identifying an available processor from the secondary  
16      processors for processing one of the coefficient  
17      blocks;  
18      processing the coefficient block using the available  
19      secondary processor, the processing resulting in a  
20      sub-result; and  
21      storing the sub-result in the common memory.
- 1     2. The method of Claim 1, further comprising determining a  
2       set of matrix operations for solving the linear  
3       equations.

- 1     3. The method of Claim 2, wherein the processing comprises  
2         applying to the coefficients block a portion of the set  
3         of matrix operations corresponding to the coefficients  
4         block.
- 1     4. The method of Claim 1, further comprising the available  
2         secondary processor directly accessing the common memory  
3         using a memory access unit and transferring the  
4         coefficients block from the common memory to a second  
5         memory local to the available second processor.
- 1     5. The method of Claim 1, wherein the dividing comprises  
2         dividing the coefficients into a plurality of coefficient  
3         blocks, a size of the coefficients blocks equaling a size  
4         of registers of the available secondary processor.
- 1     6. The method of Claim 1, further comprising sending a  
2         request to the available secondary processor to begin  
3         processing the coefficient block, the request comprising  
4         processing instructions and the location of the  
5         coefficient block.
- 1     7. The method of Claim 1, further comprising the available  
2         secondary processor notifying one of the first processors  
3         after processing the coefficients block.
- 1     8. The method of Claim 1, further comprising processing the  
2         data block further using one of the first processors.
- 1     9. An information handling system comprising:  
2         a plurality of heterogeneous processors, wherein the  
3         plurality of heterogeneous processors includes one or  
4         more first processors and one or more secondary  
5         processors; and

a common memory accessible by the plurality of heterogeneous processors, wherein:

one of the first processors is adapted to receive, into the common memory, a plurality of coefficients, the coefficients corresponding to the linear equations,

one of the first processors is adapted to divide the coefficients into a plurality of coefficient blocks,

one of the first processors is adapted to identify an available processor from the secondary processors for processing one of the coefficient blocks,

the available secondary processor is adapted to process the coefficient block, the processing resulting in a sub-result, and

the available secondary processor is adapted to store the sub-result in the common memory.

10. The information handling system of Claim 9, wherein one of the first processors is further adapted to determine a set of matrix operations for solving the linear equations.

11. The information handling system of Claim 10, wherein the available second processor is further adapted to apply to the coefficients block a portion of the set of matrix operations corresponding to the coefficients block.

1 12. The information handling system of Claim 9, wherein the  
2 available second processor is further adapted to directly  
3 access the common memory using a memory access unit and  
4 to transfer the coefficients block from the common memory  
5 to a second memory local to the available second  
6 processor.

1 13. The information handling system of Claim 9, wherein one  
2 of the first processors is further adapted to divide the  
3 coefficients into a plurality of coefficient blocks, a  
4 size of the coefficients blocks equaling a size of  
5 registers of the available secondary processor.

1 14. The information handling system of Claim 9, wherein one  
2 of the first processors is further adapted to send a  
3 request to the available secondary processor to begin  
4 processing the coefficient block, the request comprising  
5 processing instructions and the location of the  
6 coefficient block.

1 15. The information handling system of Claim 9, wherein the  
2 available second processor is further adapted to notify  
3 one of the first processors after processing the  
4 coefficients block.

1 16. The information handling system of Claim 9, wherein one  
2 of the first processors is further adapted to process the  
3 data block further.

1 17. A computer program product on computer operable media,  
2 the computer program product comprising:  
3 means for receiving, into a common memory, a plurality  
4 of coefficients,

5 the common memory being accessible by one or more  
6 first processors and by one or more secondary  
7 processors, wherein the one or more first processors  
8 and the one or more second processors are included  
9 in a group of heterogeneous processors, and  
10 the coefficients corresponding to a set of linear  
11 equations;

12 means for dividing the coefficients into a plurality  
13 of coefficient blocks;

14 means for identifying an available processor from the  
15 secondary processors for processing one of the  
16 coefficient blocks;

17 means for processing the coefficient block, the  
18 processing resulting in a sub-result; and

19 means for storing the sub-result in the common memory.

1 18. The computer program product of Claim 17, further  
2 comprising means for determining a set of matrix  
3 operations for solving the linear equations.

1 19. The computer program product of Claim 18, wherein the  
2 means for processing comprises applying to the  
3 coefficients block a portion of the set of matrix  
4 operations corresponding to the coefficients block.

1 20. The computer program product of Claim 17, wherein the  
2 means for dividing comprises means for dividing the  
3 coefficients into a plurality of coefficient blocks, a  
4 size of the coefficients blocks equaling a size of  
5 registers of the available secondary processor.